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Notes on Acrydium and the Actual Status of Three Supposedly American Species (Orthoptera, Acrididae, Acrydiinae).

By MORGAN HEBARD, Philadelphia, Pennsylvania.

In 1909 J. L. Hancock described three species and two varieties of the Acrydiinae from North America,[1] the first species of which he noted as "Amer. b.", the material being from the Saunders Collection, presented to the University Museum, Oxford, by Mrs. F. W. Hope. Part of this series is now in the author's collection and the carelessly written labels have been deciphered as all "Amur I." Further study proves beyond question that a painful mistake was made, the series not coming from North America but from eastern Asia.

Comparison with our series of Asiatic Acrydiinae shows that, in consequence, nothing but synonyms were erected.

Hancock's *T[etrix] americana* (page 414) was based on two females and his *T[etrix] americana dimorpha*[2] (page 415) on four examples, one of these paratypes, a male, being in the author's collection. This male agrees competely with a male in the same collection, collected at Khabarowka on the Amur in May by Paraschine. We have also a female (likewise abbreviate) bearing the same data; a male (abbreviate) from Chilok, Transbaikalia; a male (abbreviate) labelled "Siberia" received in exchange from the Geneva Museum determined as, and probably from the same series as the type of, *Tettix sibiricus* Bolivar, 1887, and three females (abbreviate) from near Kartun in the District of Vladivostok. These names of Hancock's are synonyms of *Acrydium sibiricum* (Bolivar). His description of *americanum* is vague and misleading, evidently based

[1] Trans. Ent. Soc. London, 1909, pp. 414 to 417.

[2] Admittedly merely the abbreviate condition of the same species.

on more than one specimen, though the contrary was stated. The vertex is not at all like that of *A. granulatum* (= *subulatum*), as it is not triangularly produced and has the median carina briefly projecting, the frontal costa is not at all, or scarcely, excavate between the eyes in lateral profile and projects just sufficiently to be visible for some distance when the insect is examined from directly above.

Hancock's *Nomotettix validus* (page 415) was based on two females, the paratype being in the author's collection. Compared with a large European series of *Tetrix kraussi* Saulcy, 1888, it shows no difference suggesting even racial separation and we therefore place that name as a synonym of *Acrydium kraussi* (Saulcy).[3]

Hancock's *N[omotettix] arcticus,* based on two females of which the paratype is in the author's collection and *N[omotettix] arcticus obtusus*,[4] based on a single male, are found from comparison with a large European series to be referable to *G[ryllus] [Bulla] bipunctatus* Linnaeus, 1758. These names, therefore, fall in synonymy under *Acrydium bipunctatum* (Linnaeus). Not only are the antennal joints more elongate than in *kraussi,* but the pronotum has its cephalic margin less produced (transverse to weakly obtuse-angulate) and the form is usually (but not always) less robust. The caudate female has the pronotal keel very high for this insect, but the vertical distance from the shoulder to its summit is considerably less than the depth of a lateral lobe.

In working out the above synonymy we had supposed that Bei-Bienko's "Notes on the Siberian Representatives of the Genus *Acrydium*" [5] would be of great value. Unfortunately that study proves to be superficial and unsatisfactory. The first species considered is, from material before us, clearly a member of the genus *Paratettix*. The first section of the key,

[3] Racial status under *bipunctatum* was suggested by Hebard in 1925 (Trans. Amer. Ent. Soc., LI, p. 37), but intergradation is not indicated in any of the one hundred and nine specimens now in the Philadelphia collections.

[4] Also merely the abbreviate condition of the same species.

[5] Eos, V, pp. 365 to 373, (1929).

whether the pronotum is abbreviate or caudate (accompanied by a corresponding development of the wings) is well known to occur very frequently in the Acrydiinae and is a feature of mere individual variation of no specific or racial importance whatever. The repeated use of "f. *macroptera*" is contrary to the generally accepted rules of nomenclature and to the International Code.

The treatment of the few specimens he had from eastern Siberia is particularly faulty. The assumption of racial status for a single female of *sibiricum* from the Vladivostok District, named *sibiricum ussuriannm*, is unjustified, the differences noted being very probably wholly attributable to individual variation, which we believe will be conclusively demonstrated by series from that region.

His description of *Acrydium simulans* (page 366, fig. 1) and *Acrydium amurense* (page 368, figs. 3 and 4) shows little knowledge of the genus, for both are probably synonyms of *Acrydium tartarum* (Bolivar), 1887, such differences as are noted being probably again attributable to individual variation. The following material of *tartarum* (a species never mentioned by Bei-Bienko) in the author's collection has been carefully compared with these descriptions. Sarafshan, Turkestan, 1 ♂ (abbreviate), originaliy labelled *tartarum* by Saussure as was the type described by Bolivar, received in exchange from the Geneva Museum. Tashkent, Turkestan, 1 ♂, 2 ♀, (abbreviate). Kokand, Turkestan, 3 ♂, 1 ♀ (male caudate, the others abbreviate). In addition there is an abbreviate male from eastern Siberia, received as a gift from Saussure by the Academy of Natural Sciences.

In these specimens the frontal costa is not visible from above in all but the last specimen (in which it can be seen from that angle as in the type of *amurense*, but the head is slightly uptilted in the former as is probably the case with the latter specimen). The pronotum has its cephalic margin strongly angulate produced, its longitudinal keel very high and nearly or quite equal to the depth of a lateral lobe, the lateral lobes have the lower sinus rectangulate to slightly obtuse-angulate, the median femora have their margins weakly undulate and the caudal metatarsus has the first pulvillus the shortest.

Finally we believe that his assertion that *Acrydium bipunctatum* (Linnaeus) may not occur in eastern Siberia is unwarranted.

Comparison of the species of the New and Old Worlds has produced some other surprising and interesting results.

The most astonishing of these is the fact that the widespread boreal North American insect, known as *Acrydium granulatum* Kirby since its description in 1937, proves to be the identical species as *Acrydium subulatum* (Linnaeus) described in 1761 and heretofor supposed to be a widespread boreal species confined to the Old World.

The New World boreal *Acrydium acadicum brunneri* (Bolivar) shows nearest affinity to that species followed by the New World boreal *Acrydium acadicum acadicum* (Scudder). In the Old World almost corresponding positions in that fauna are taken by *Acrydium kraussi* (Saulcy), *Acrydium bipunctatum* (Linnaeus) and its very close relative *Acrydium sibiricum* (Bolivar). The less boreal North American *Acrydium ornatum* Say finds its corresponding Old World relative in the less boreal *Acrydium ceperoi* (Bolivar).

Of the remaining Old World species the less boreal European *Acrydium turki* (Krauss), the closely related eastern Asiatic *Acrydium japonicum* (Bolivar), both of which apparently belong to a branch from the *bipunctatum* stem, and the very distinctive European and western Asiatic *Acrydium depressum* (Brisout) have no counterpart in the New World, but in eastern Asia *Acrydium tartarum* (Bolivar) apparently takes the place of the New World genus *Nomotettix*.

All of these species are represented in the Philadelphia collections. Without material it appears probable that *Acrydium kiefferi* (Saulcy) is a response to certain conditions of local environment developed either in *bipunctatum* or *kraussi*, or is intermediate and based on material indicating that the latter is a geographic race of the former.

It is almost certain that *Acrydium bolivari* (Azam) 1901 is a synonym of *subulatum*, based on individuals which have the vertex least projecting. Both Saulcy and Azam ignored the

fact that caudate, abbreviate and all intermediate conditions of pronotal and wing development are a matter of mere individual variation frequently occurring in many species of the Acrydiinae. The past literature is unfortunately filled with names improperly proposed for such individual variations having no racial or specific significance whatever, as well as for color phases which in the Acrydiinae have been proven to be nothing more than Mendelian factors.

In considering these species one is struck by the number from the Old World in which the vertex is less and the frontal costa is more projecting, so that the latter is visible in direct dorsal aspect, a feature not shown by any of those from the New World.

A List of the Ants of Oklahoma (Hymen.: Formicidae).

By M. R. Smith, Department of Entomology, Mississippi State College, State College, Miss.

Although the ant fauna of Texas, New Mexico, and Arizona seems to be rather well known, that of Oklahoma, unfortunately, has been neglected by myrmecologists. The following list has, therefore, been prepared by the writer with the idea of filling as much as possible this gap in our knowledge of North American ants. The state should be an unusually interesting collecting ground for myrmecologists, because it is here that many of the eastern and western ants meet. In addition, the various topographical regions should contain very characteristic species. So far as the writer is aware, only two ants have been described from Oklahoma, and these only within the last year. The two species referred to are *Aphaenogaster treatae* subsp. *pluteicornis* and its variety *oklahomensis*.

According to H. H. Lane, in the Naturalist's Guide to the Americas, the state is considered largely an oak grove savannah. It contains four mountainous uplifts as follows: the Ozarks, the Arbuckles, the Ouachita and Wichita mountains. The re-